What Is a Transverter and How Do I Purchase One
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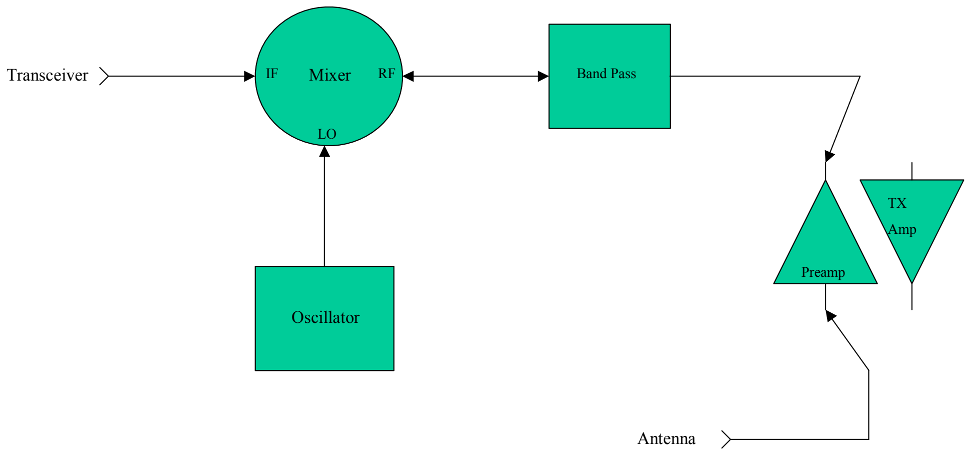
What is the object of a transverter – For many years now, on the VHF/ UHF and Microwave bands, transverters have been employed. The reason for them is to transition to another frequency band, both in transmit and receive using one common radio. In other words, use one radio as the **IF** for several different bands!

What are the components of a transverter– Shown below are the basic building blocks of a transverter. In modern day equipment different construction techniques may be employed but the principles of how they work are the same.

Transverter Block Diagram



How do the components work – For this example we will use a 220Mhz transverter that uses 28Mhz, 10 meters, as the **IF**. First is the **Oscillator** – it uses a crystal oscillator and provides an output frequency of 194Mhz and is connected to the mixer at the **LO** port.

Next, a transceiver that provides 28Mhz is connected to the **IF port**. And when a small amount of transmitted energy is sent to the **mixer**. The 194Mhz energy present at the **LO port** mixes with the 28Mhz and resultant output from the **RF port** contains 194Mhz+28Mhz = 222Mhz, 194Mhz-28Mhz = 146Mhz, and many other plus and minus harmonics. However, the correct mix is 222Mhz and a **bandpass filter** is employed so that only the 222Mhz energy is passed to the **amplifiers** for transmit or will accepted from the **preamp** for receive. During receive the 194Mhz will mix with the 222Mhz and provide an output to the **IF port** on 28Mhz.

How to purchase a transverter – A two or three times a year the Pacific Northwest VHF Society makes available to its members, in good standing, a group purchase, with discounts, from Down East Microwave Inc. However, if you want to roll your own they can be purchased from several sources.

What information is needed to purchase a transverter – Purchasing a transverter is a little more than calling a vendor and telling them you want one. But with some simple information and guidelines you can make your selection correctly.

First decide the band or output frequency of your new transverter. This will determine the **IF** requirements of the radio you will use. If the transverter is for 6 meters, 2 meters, 222Mhz, or 432Mhz your **IF** will, most likely, be 28Mhz. For 903 and 1296 it will be 144Mhz **IF**. And for 2304Mhz and higher the **IF** can be either 144Mhz or 432Mhz. Whether a kit or an already built unit you will need the information in the next paragraph.

Determine the output or drive level of your **IF radio**. Because ordering a **low input drive** transverter when you have high output drive available will create problems. Once you have determined the **drive level** the next question to ask yourself is do you want to use a **common IF port** or does your radio have an extra receive port. This being the case the **split IF ports** might be the right way to go. This is important because it will take **one less relay** if you can use the **split IF ports.** However, if the **IF radio** doesn't have this option, a simple circuit can be constructed to make it interface correctly to a **common port IF transverter**. And some vendors have these interface circuits available to purchase. Last but not least is to determine if you have the correct **relay** for the **transverter output**. In the case of the newer 50Mhz thru 1296Mhz transverters the **output relay switching** may be a built in option. But with the 2304Mhz and up it will, most likely, be necessary to purchase and use an **external SMA relay**. But this can be determined at the time of placing your order.

Nuts and Bolts –

To Purchase a transverter you will need the following information available to share with whom ever your ordering from.

1). What is the transverter output frequency?
2). What is the transverter IF input frequency?
3). What is the IF drive level?
4). Do I use Split or Common IF?
5). Will it be a kit or already built?
6). Split or common transverter output (A choice may not be available)
7). If the transverter is split output, I will need an SMA relay?
8). If available, what output level do I want you transverter to be?

Conclusion – The preceding discussion is very basic, and as such doesn't include other possibilities and options that might be available. It is, however, hoped that this information will be useful in determining what you need when making your next purchase. And should have questions regarding this information or for questions please feel free to contact me at any time.